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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SINCLAIR, DAVID M	
ART UNIT	PAPER NUMBER
2831	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,386	DRUGGE ET AL.	
	Examiner	Art Unit	
	DAVID M. SINCLAIR	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,8-21,25-29,31-32,34,40 and 41* is/are rejected.

7)☒ Claim(s) *5-7,22-24,30,33 and 35-39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/19/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: “L1”, “t1”, and “a1”.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the diffusion barrier and armouring must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37

CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

5. Claim 32 & 39 recite the limitation "prior to injection molding" in line 2. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 28 recite the limitation "the material" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 112

7. Claims 11, 28, 31, & 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Regarding claims 11, 28, 31, & 40, the phrase "preferably" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

9. Claims 40-41 provide for the use of the power capacitor of claim 1, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 40-41 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 4, 9-10, 21, 25-26, 31-32, & 40-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Eriksson et al. (2003/0142457).

In regards to claim 1, Eriksson '457 discloses

A power capacitor (title), comprising at least one capacitor element (2a-2d – fig. 1; abstract) enclosed in a substantially cylindrical container (1 – fig. 1; abstract) of a material that substantially comprises a first polymer material ([0019]), and wherein the container on its envelope surface comprises a plurality of protrusions (11 – fig. 7; [0031] & [0073]) designed to extend the creepage distance along the container, wherein the protrusions are substantially of a second polymer material ([0073] – implied protrusions are same material of container), and wherein the protrusions are formed with respect to their thickness and radial length so that they cool the capacitor.

In regards to claim 4, Eriksson '457 discloses

The power capacitor according to claim 1, wherein essentially the whole envelope surface of the power capacitor is covered with a plurality of the protrusions (fig. 7).

In regards to claim 9, Eriksson '457 discloses

The power capacitor according to claim 1, wherein the capacitor element(s) is/are enclosed in at least one insulating medium which is in a state different from a liquid state within the working temperature interval of the capacitor ([0062]).

In regards to claim 10, Eriksson '457 discloses

The power capacitor according to claim 1, wherein the first polymer material and the second polymer material are of the same kind of polymer materials ([0073]).

In regards to claim 21, Eriksson '457 discloses

The power capacitor according to claim 1, wherein the capacitor comprises at least one tubular element running in the cylinder direction and extending through each capacitor element ([0064]).

In regards to claim 25, Eriksson '457 discloses

A method for manufacturing a power capacitor (title) comprising at least one capacitor element (2a-2d – fig. 1; abstract) enclosed in a substantially cylindrical container 1 – fig. 1; abstract) made of a material that substantially comprises a first polymer material ([0019]), and wherein the container on its envelope surface comprises a plurality of protrusions (11 – fig. 7; [0031] & [0073]) designed so as to extend the creepage distance along the container, the protrusions are made of a second polymer material ([0073] – implied protrusions are same material of container), that the protrusions are formed with respect to their length and width so that they cool the capacitor, and the capacitor element(s) is/are encapsulated in a container (fig. 1).

In regards to claim 26, Eriksson ‘457 discloses

The method according to claim 25, further comprising: bringing the capacitor element(s) to be enclosed in at least one insulating medium which is in state other than liquid state within the working temperature interval of the capacitor ([0062]).

In regards to claim 31, Eriksson ‘457 discloses

The method according to claim 25, wherein a cylindrical polymer tube is provided for forming the container, wherein the protrusions are applied to the polymer tube, whereby the tube is preferably of polyethylene, and wherein the capacitor element(s) is/are placed in the polymer tube ([0062] & [0031]).

In regards to claim 32, Eriksson ‘457 discloses

The method according to claim 25, wherein each capacitor element prior to injection molding is applied to a tubular element extending through each capacitor element ([0064]).

In regards to claim 40, Eriksson ‘457 discloses

Use of a power capacitor according to claim 1 at voltages exceeding 1 kV, preferably at least 5 kV ([0063]).

In regards to claim 41, Eriksson '457 discloses

Use of a power capacitor according to claim 1 in a system for transmission of alternating current (AC) ([0003]).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 2-3, 8, & 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson '457.

In regards to claim 2,

Eriksson '457 discloses the claimed invention except for the protrusions comprise at least one protrusion with a thickness in the interval of 0.2-10 mm and a radial length in the interval of 5-50 mm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form at least one protrusion with a thickness in the interval of 0.2-10 mm and a radial length in the interval of 5-50 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In regards to claim 3,

Eriksson '457 discloses the claimed invention except for the protrusions comprise at least one protrusion with a thickness in the interval of 1-4 mm and a radial length in the interval of 10-25 mm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form at least one protrusion with a thickness in the interval of 1-4 mm and a radial length in the interval of 10-25 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In regards to claim 8,

Eriksson '457 discloses the claimed invention except for the protrusions are arranged with an axial pitch in the interval of 5-25 mm. It would have been

obvious to one having ordinary skill in the art at the time the invention was made to arrange the protrusions with an axial pitch in the interval of 5-25 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In regards to claim 11,

Eriksson '457 discloses the claimed invention except for the insulating medium, the container, and the protrusions of the container are all for the most part of rubber. It would have been obvious to one having ordinary skill in the art at the time the invention was made to for the most part form the insulating medium, the container, and the protrusions of the container of rubber, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In regards to claim 12,

Eriksson '457 discloses the claimed invention except for the insulating medium, the container, and the protrusions of the container are of the same kind of rubber. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the insulating medium, the container, and the protrusions of the container of the same kind of rubber, since it has been held to

be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In regards to claim 13,

Eriksson '457 discloses the claimed invention except for the insulating medium, the container, and the protrusions of the container are all for the most part of a thermoset. It would have been obvious to one having ordinary skill in the art at the time the invention was made to for the most part form the insulating medium, the container, and the protrusions of the container of a thermoset, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In regards to claim 14,

Eriksson '457 discloses the claimed invention except for the insulating medium, the container, and the protrusions of the container are of the same kind of thermoset, and wherein the thermoset is based on one of the following materials: epoxy, polyurethane, or polyester. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the insulating medium, the container, and the protrusions of the container of the same kind of thermoset based on one of the following material: epoxy, polyurethane, or

polyester, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In regards to claim 15,

Eriksson '457 discloses the claimed invention except for the insulating medium, the container, and the protrusions of the container are injection-molded in one single piece. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the insulating medium, the container, and the protrusions of the container in one single piece, since it has been held that forming in one piece an article which has formally been formed in two pieces and put together involves only routine skill in the art. Howard v. Detroit Stove Works, 150 U.S. 164 (1893).

15. Claims 16-20, 27-29, & 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson '457 in view of Ramarge et al. (2002/0100605).

In regards to claim 16,

The reference as applied above discloses all the limitations of claim 16 except wherein the container and the protrusions of the container are of different polymer materials.

Ramarge ‘605 discloses a container with protrusions wherein the container and the protrusions of the container are of different polymer materials ([0045]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the container and the protrusions of Eriksson ‘457 of a different polymer material as taught by Ramarge ‘605 to obtain a capacitor with a hydrophobic housing which reduces leakage current and dry band arcing.

In regards to claim 17,

The reference as applied above discloses all the limitations of claim 17 except the container is of polyethylene and the protrusions are of silicone rubber or EPDM. However, Eriksson ‘457 discloses the container is of polyethylene ([0019]). Erikson ‘457 fails to disclose the protrusions are of silicone rubber or EPDM.

Ramarge ‘605 discloses the protrusions are of silicone rubber or EPDM ([0045]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the protrusions of Eriksson ‘457 of a silicone rubber as taught by Ramarge ‘605 to obtain a capacitor with a hydrophobic housing which reduces leakage current and dry band arcing.

In regards to claim 18,

The reference as applied above discloses all the limitations of claim 18 except the container is of fibre-reinforced thermoset and the protrusions are of silicone rubber or EPDM.

Ramarge '605 discloses the protrusions are of silicone rubber or EPDM ([0045]). Ramarge '605 fails to disclose the container is of fibre-reinforced thermoset.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the protrusions of Eriksson '457 of a silicone rubber as taught by Ramarge '605 to obtain a capacitor with a hydrophobic housing which reduces leakage current and dry band arcing.

The references disclose the claimed invention except for the container is of fibre-reinforced thermoset. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the container of a fibre-reinforced thermoset, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In regards to claim 19,

The references disclose the claimed invention except the insulating medium is silicone in gel state. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the insulating gel medium of silicone, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In regards to claim 20,

The references disclose the claimed invention except the insulating medium is based on a thermoset. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a thermoset for the insulating, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In regards to claim 27,

The reference as applied above discloses all the limitations of claim 27 except, the manufacture of the container, the application of the protrusions, the encapsulation of the capacitor element(s) and the enclosure in the insulating medium are achieved by injection molding.

Ramarge '605 discloses using injection molding to form the insulating housing and protrusions ([0039]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use injection molding as taught by Ramarge '605 to form the container, protrusions, and insulating medium of Eriksson '457 to manufacture the power capacitor with minimal loss of scrap material and minimal finishing requirements reducing the cost and time to manufacture.

In regards to claim 28,
The reference as applied above discloses all the limitations of claim 27 except the material is rubber, preferably silicone rubber.

Ramarge '605 discloses the material is rubber, preferably silicone rubber ([0039]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use rubber as taught by Ramarge '605 to form the container, protrusions, and insulating medium of Eriksson '457 to obtain a capacitor with a hydrophobic housing which reduces leakage current and dry band arcing.

In regards to claim 29,

The reference as applied above discloses all the limitations of claim 29 except the injection molding occurs in one single step and with one single material.

Ramarge '605 discloses the injection molding occurs in one single step and with one single material ([0039]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a single injection molding step as taught by Ramarge '605 to form the container, protrusions, and insulating medium of Eriksson '457 to reduce the time for manufacturing.

In regards to claim 34,

The reference as applied above discloses all the limitations of claim 34 except the protrusions are applied to the container by injection molding, by winding them in a spiral around the container, or by providing them as prefabricated sleeve-like elements which are threaded onto the container.

Ramarge '605 discloses the protrusions are applied to the container by injection molding, by winding them in a spiral around the container, or by providing them as prefabricated sleeve-like elements which are threaded onto the container ([0039]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use injection molding as taught by Ramarge '605 to form the protrusions of Eriksson '457 to manufacture the power capacitor with minimal loss of scrap material and minimal finishing requirements reducing the cost and time to manufacture.

Allowable Subject Matter

16. Claims 5-7, 22-24, 30, 33, & 35-39 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPAT 5,497,138 - capacitor in container comprising protrusions

USPAT 5,936,825 - capacitor in container comprising protrusions of various sizes

USPAT 2,186,842 – capacitor in container comprising protrusions wherein the protrusions increase heat dissipation

USPAT 1,738,314 - capacitor in container comprising protrusions

USPGPUB 2005/0264978 – HV capacitor comprising container and protrusions

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID M. SINCLAIR whose telephone number is (571)270-5068. The examiner can normally be reached on Mon - Thurs. 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Gutierrez/

Supervisory Patent Examiner, Art Unit 2831

/D. M. S./
Examiner, Art Unit 2831